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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/245,168	02/05/1999	VINCENT K. JONES	CISCP604	4595

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EXAMINER

HOM, SHICK C

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/245,168

Applicant(s)

JONES ET AL.

Examiner

Shick C Hom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/5/99, 4/12/01, 4/4/02.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in page 1 lines 1-2 update status of co-filed application CISCP625 if known.

Appropriate correction is required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 3, 8, 9, 11, 14, 16, 22, and 24 are objected to because of the following informalities: in claim 3 line 2, delete "said bursts" and insert ---said successive OFDM bursts---, for clarity; likewise, in claim 8 line 1 delete "said OFDM bursts" and insert ---said successive OFDM bursts---. In claim 9 line 4 delete typo "periodically spaced periodically spaced" and insert ---periodically spaced---. In claim 11 line 3 and claim 14 line 4 delete "said burst" and insert ---said at least one OFDM

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synchronization burst--- and ---said frequency domain burst---, respectively. In claim 16 line 2 and claims 22 and 24 line 3 delete "said bursts" and "said burst" and insert ---said OFDM bursts---, ---said synchronization OFDM burst---, and ---at least one OFDM synchronization burst---, respectively. Appropriate correction is required.

4. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

Claim 10 is objected to because claim 10 does not dependent from a preceding claim, it dependent from claim 11.

Claim Rejections - 35 USC § 112

5. Claims 1, 3-10, 12-13, and 16-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to

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particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 9 which recite "said data burst" lacks clear antecedent basis because no data burst have been previously recited in the claim and therefore the limitation is not clearly understood. In claim 3 lines 2-3 and claim 16 lines 3 which recite "the time domain" and claims 3 and 16 lines 5-6 which recite "said channel" lack clear antecedent basis. In claim 5 line 3 which recite "said cyclic prefix length" lacks clear antecedent basis. In claim 8 line 4 which recite "said integer component" lacks clear antecedent basis. In claim 9 line 3 which recite "said bursts" lacks clear antecedent basis. In claim 10 line 3 which recite "said setting step" lacks clear antecedent basis. In claim 12 lines 5 and 6 which recite "said time domain burst" lacks clear antecedent basis and not clear as to whether it is reciting ---said burst of time domain symbols---. In claim 13 line 2 which recite "said data burst" lacks clear antecedent basis. In claim 13 line 2 which recite "a transmission stage" is not clear as to whether it is reciting ---a second transmission stage--- or ---said transmission stage--- of claim 12 line 3. In claim 16 lines 8 and 9 which recite "said successive OFDM bursts--" lack clear antecedent basis. In claim 16 line 8, claim 22

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line 5, and claim 24 line 6 which recite "a synchronization system" is not clear as to whether it is reciting ---said system for synchronizing--- of claims 16, 22, 24 line 1, respectively. In claim 17 line 2 which recite "said second portion" lacks clear antecedent basis. In claim 21 line 3 which recite "said integer component" and "said receiver frequency alignment" lack clear antecedent basis. In claim 19 line 2 is not clear because it seems to be missing some text.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this

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application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1, 2, and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Sano et al.

Sano et al. disclose all the subject matter now claimed. Note col. 1 lines 44-50 which recite a method for synchronizing OFDM signal between a receiver and transmitter in which no signal sections, i.e. null sections, are inserted into the OFDM signal periodically in the transmitter so that the null sections are used as a reference for synchronization at the receiver clearly anticipate the method for transmitting OFDM signal to facilitate receiver synchronization including the step of developing a frequency domain burst wherein periodically spaced frequency domain symbols burst have non-zero values between periodically spaced symbols having null energy and the step of transmitting the frequency domain burst as in claims 2, 9, 11, 14-15, 22, 24 and at least one of the symbols carries data as in claims 15 and 25. Further, Fig. 10 which shows the reverse discrete Fourier Transform circuit at the transmitter 200 clearly anticipate the transform processing that transforms the frequency domain burst into time domain burst as in claim 14. Col. 1

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lines 51-61 which recite a group of synchronization symbols including a null section, a sweep signal (which varies from a lower limit frequency to an upper limit frequency of a transmission band during one symbol) and the like being inserted in the beginning of a frame which is a unit for data transmission processing and synchronization being taken using the synchronization symbol group clearly anticipate the step of appending to the beginning of the burst a cyclic prefix as in claims 1, 3, 12, 13, and 16.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant

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is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 3, 9-11, 16, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. as applied to claims 2 and 14 above, and further in view of Petrus et al.

Sano et al. did not teach the step of evaluating a cost function that varies depending on burst timing alignment and setting the timing alignment to optimize the cost function as in claims 3, 9-11, 16, and 22-25.

Petrus et al. teach that it is known to provide a method for generating a reference signal transmitted from a remote station to a communications station used for time alignment at the receiver whereby the cost function is optimized using the received signals and the reference signal as set forth at col. 3 line 66 to col. 4 line 29 in the field of digital and multiplex communications for the purpose of providing a more cost effective system operation which clearly anticipate the step of evaluating

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a cost function that varies depending on burst timing alignment and setting the timing alignment to optimize the cost function.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the step of evaluating a cost function that varies depending on burst timing alignment and setting the timing alignment to optimize the cost function as taught by Petrus et al. to the system of Sano et al. because Petrus et al. teach the desirable advantage of providing a more cost effective system operation by varying timing alignment in Sano et al.

Allowable Subject Matter

10. Claims 4-8 and 17-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Klank et al. disclose a method for reception of multicarrier signals and related apparatus. Toshihisa discloses a digital signal transmitter.

11. **Any response to this action should be mailed to:**

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Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal
Park II, 2121 Crystal Drive, Arlington. VA., Sixth
Floor (2600 Receptionist at (703) 305-4750).

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Shick Hom
whose telephone number is (703) 305-4742. The examiner's regular
work schedule is Monday to Friday from 8:00 am to 5:30 pm EST and
out of office on alternate Friday.

If attempts to reach the examiner by telephone are
unsuccessful, the examiner's supervisor, Douglas Olms, can be
reached at (703) 305-4703.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



**DANG TON
PRIMARY EXAMINER**

SH

June 28, 2002